

FACT SHEET

FINAL RULE TO EXCLUDE FOUR CHEMICAL COMPOUNDS FROM CONTROL AS VOLATILE ORGANIC COMPOUNDS

ACTION

- On November 18, 2004, the Environmental Protection Agency (EPA) excluded four chemicals from the definition of volatile organic compound (VOC). VOCs contribute to the formation of ground-level ozone.
- The newly exempted compounds are:
 - 1) HFE-7000, which refers to 1,1,1,2,2,3,3-heptafluoro-3-methoxy-propane ($\text{n-C}_3\text{F}_7\text{OCH}_3$) ;
 - 2) HFE-7500, HFE-s702, T-7145, and L-15381, all of which are names for the compound 3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-dodecafluoro-2-(trifluoromethyl) hexane;
 - 3) HFC 227ea, which refers to 1,1,1,2,3,3,3-heptafluoropropane; and
 - 4) methyl formate (HCOOCH_3).
- These four compounds will no longer be regulated as VOCs for purposes of emission limitations or content requirements included in Clean Air Act State implementation plans (SIPs) to attain the national air quality standards for ozone. As a result of this action, states will be allowed, but not required, to remove emissions controls on these four compounds.
- Scientific evidence demonstrates that these compounds are "negligibly reactive," meaning they contribute little or nothing to the formation of ground-level ozone. Exempting these compounds will allow states to focus on controlling emissions of other compounds known to contribute to the formation of ground-level ozone. EPA anticipates that use of these chemicals may increase, replacing the use of others that are more reactive and or more toxic.
- Exposure to ground-level ozone can aggravate respiratory disease and reduce lung function. Ozone exposure also is linked to the premature aging of the lungs, and potentially to the development of asthma. In addition, there is growing scientific evidence linking ozone exposure to premature death.
- The table below shows how the exempted compounds are typically used:

<u>Compound</u>	<u>Potential Use</u>
1,1,1,2,2,3,3-heptafluoro-3-methoxy-propane	- solvent cleaner - aerosol propellant
3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-dodecafluoro-2-(trifluoromethyl) hexane	- refrigerant

1,1,1,2,3,3,3-heptafluoropropane	- fire suppressant - inhalation propellant - sterilizing agent
methyl formate	- blowing agent

- Also in this rule, EPA is clarifying the nomenclature for two previously exempted compounds. The Agency will use the term **HFE-7100** to refer to 1,1,1,2,2,3,3,4,4-nonafluoro-4-methoxy-butane (C₄F₉OCH₃) and **HFE-7200** to refer to 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluorobutane (C₄F₉OC₂H₅).

HEALTH AND ENVIRONMENTAL IMPACTS

- The presence of these four chemical compounds in the outdoor air does not appear to negatively affect human health or the environment.
- Three of these compounds -- 1,1,1,2,2,3,3-heptafluoro-3-methoxy-propane and 3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-dodecafluoro-2-(trifluoromethyl) hexane and 1,1,1,2,3,3,3-heptafluoropropane -- are hydrofluorocarbons (HFCs) and may be used as an alternative to chlorofluorocarbons (CFCs). CFCs are being phased out of production because of their ability to deplete stratospheric ozone.
- Exposure to methyl formate can have adverse health impacts at high levels causing irritation to the eyes, skin, and lungs, and at higher levels may cause pulmonary damage. Methyl formate is well-regulated by other federal agencies, including the National Institute for Occupational Safety and Health and the Occupational Safety and Health Administration. As a result of this additional regulation, EPA anticipates that exposures to this compound will remain below levels of concern, even if use increases as a result of this final rule.
- EPA plans to publish a notice in the near future seeking public comment on the recordkeeping and reporting requirements associated with these exemptions. The concept of requiring reporting and recordkeeping for an exempt compound is new and not a typical requirement of the VOC program.

BACKGROUND

- The Clean Air Act allows any person to petition EPA to exclude a chemical compound from control as a VOC, provided scientific data demonstrate it has a negligible effect on the formation of ground-level ozone.
- To meet the “negligible effect” requirement, a compound must be less reactive than ethane. Compounds more reactive than ethane must continue to be controlled. Since 1977, EPA has removed 48 specific compounds or classes of compounds from the list of VOCs that contribute to ozone formation.

- A series of petitions led to the exemptions finalized in this rule. For each of these petitions, the data submitted by the petitioners support the contention that the reactivities of these compounds are lower than that of ethane.
 - ▶ In February 1999, the 3M Company submitted to EPA a petition requesting that the compound 1,1,1,2,2,3,3-heptafluoro-3-methoxy-propane be exempted from control as a VOC.
 - ▶ In August 1999, 3M Company submitted to EPA a petition requesting that the compound 3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-dodecafluoro-2-(trifluoromethyl) hexane also be exempted from VOC control.
 - ▶ In February 1998, the Great Lakes Chemical Corporation petitioned EPA for the exemption of 1,1,1,2,3,3,3-heptafluoropropane (HCF-227ea) from the definition of VOC.
 - ▶ In February 2002, Foam Supplies, Inc. submitted a petition to exclude methyl formate from the definition of VOC.
- EPA proposed to remove these four chemicals from regulation as VOCs on September 3, 2003.

FOR MORE INFORMATION...

- Interested parties can download the final rule from EPA's web site on the Internet under "Recent Actions" at the following address: <http://www.epa.gov/ttn/oarpg>.
- The EPA's Office of Air and Radiation's home page on the Internet contains a wide range of information on the air pollution programs including air toxics issues. The Office of Air and Radiation's home page address is: <http://www.epa.gov/oar/>.